

REMARKS

Claims 1, 8, 26, and 27 have been amended. Claims 1-27 are pending in the present application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

The examiner rejected claims 1-10, 13-25, 26, and 27 under 35 U.S.C. § 103(a) over U.S. Patent No. 5,636,641 to Fariabi in view of U.S. Patent No. 5,720,300 to Fagan. This rejection is respectfully traversed.

According to the examiner, Fariabi discloses a heat-treated elongate member/guide wire having an age hardened material and in part a superelastic material wherein the age hardened material and superelastic material extend from the proximal section to the distal section. Applicant appreciates the drawing provided by the examiner at page 7 of the pending Office action.

To better distinguish the present invention over the cited reference, applicant has amended claim 1, for example, to include “a flexible body disposed at a distal end of the distal section,” and “wherein the precipitation hardened material and superelastic material extend from the proximal section to at least substantially underneath the flexible body.” Claims 8, 26, and 27 have been amended similarly. Support for this amendment is found in, for example, Fig. 1 and page 10, lines 10-12, of the pending application.

As mentioned in previous responses, the Fariabi reference explicitly states that the high strength sheath 12, 36 is removed from the core member 11, 32, “which exposes the inner NiTi alloy member 13,” and forms the tapered distal section 17, 31 of the distal section of the guide wire. (Fariabi, col. 4, l. 67 – col. 5, ll. 1-2; col. 5, ll. 14-17; Figs. 1 and 2.) The examiner does not appear to dispute this reading of Fariabi. The sheath and NiTi core of Fariabi therefore do not extend underneath the coil 14, 34 in either embodiment shown in Figs. 1 and 2.

On the other hand, Fariabi at col. 6, ll. 4-8, suggests that the high strength cobalt-nickel alloy sheath may extend up to and cover the core member up to the flexible coil so that “the proximal end of the flexible coil can be soldered or brazed to the Co-Ni-Cr alloy sheath” rather than the more difficult bond with the NiTi core. This does not suggest that the Co-Ni-Cr sheath extends underneath the flexible coil.

In particular, as shown in the drawings in Figs. 1 and 2 of Fariabi (reproduced below), the Co-Ni-Cr sheath extends only to the taper immediately proximal to and *abutting* the very proximal-most turn of the coil, where this interface between the coil and sheath provides the site for the weld or solder (see circled areas below). There is no suggestion that the Co-Ni-Cr sheath extends underneath the coil, and certainly such an interpretation is inconsistent with the explicit teaching in Fariabi that the sheath 12, 36 is ground away to expose the NiTi alloy member 13, 37, discussed earlier. So by inspection of the drawings and reading of the specification, applicant respectfully submits that the sheath 12, 36 *does not extend underneath* the flexible coil 14, 34, and the amended claims are distinguishable over Fariabi.

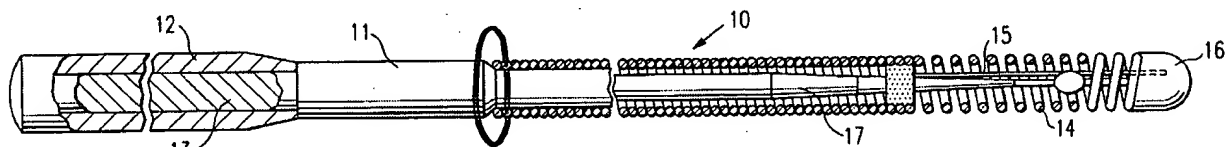


FIG. 1

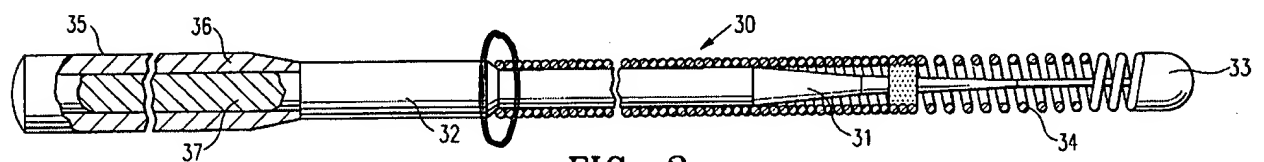


FIG. 2

Moreover, the extension of the precipitation hardened material and superelastic material to substantially underneath the flexible body is not a matter of design choice. One reason is that one preferred embodiment teaches careful selection of precipitation hardened and superelastic materials such that their cross-sectional areas $A_{(S)}$, $A_{(Co)}$, are expressed as ratios relative to the entire cross-sectional area of the composite member $A_{(C)}$ to calculate a blended ultimate tensile strength and Young's modulus of elasticity. (See, application, p. 13, ll. 9-15, Equations I and II.) Since the cross-sectional areas of the core and shell are important based on Equations I and II, the amount of taper and the (profile) length of the precipitation hardenable material and superelastic material are factors. In other words, the length and taper of the composite core made of the shell and core affect the size and ratio of the respective cross-sectional areas, which areas then affect the ultimate tensile strength and Young's modulus of elasticity for the composite wire. These engineering qualities provide the present invention with strength advantages over a conventional, similarly dimensioned core made only of superelastic nitinol. (See, application, p. 5, ll. 9-14.) Consequently, the length and taper being purposely selected to extend distally to underneath the flexible coil should not be dismissed as a matter of design choice. Again, the present invention for this reason is nonobvious.

According to the examiner, Fagan discloses a solid core guide wire made of a precipitation hardened material. Fagan discloses nothing with regard to the precipitation hardened material and superelastic material extending from the proximal section to substantially underneath the flexible body of the elongate core or guide wire. Therefore, applicant contends that the present invention as defined by the amended claims is distinguishable over the cited references individually or in combination.

The examiner rejected claims 11 and 12 under 35 U.S.C. § 103(a) over Fariabi in view of Fagan and further in view of Reiss (WO98/22024). This rejection is respectfully traversed.

According to the examiner, Reiss discloses examples of temperature hardened, martensitic steel alloys. However, Reiss adds nothing to the teachings of the other cited references with regard to the precipitation hardened material and superelastic material extending from the proximal section to substantially underneath the flexible body of the elongate core or guide wire. For this reason, applicant believes that the amended claims are not obvious in view of the cited references individually or in combination.

In view of the foregoing, applicant respectfully submits that all claims are now in condition for allowance. Reexamination and reconsideration of the application are respectfully submitted and allowance at an early date is solicited.

Respectfully submitted,

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